Department of Toxic Substances Control

Alan C. Lloyd, Ph.D.
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700 Heinz Avenue, Suite 200
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Arnold Schwarzenegger
Governor

June 21, 2005

Mr. Thomas L. Macchiarella
Southwest Division Naval Facilities Engineering Command
Attn: Code 06CA.TM
1220 Pacific Highway
San Diego, CA 92132-5190

DRAFT FINAL REMEDIAL INVESTIGATION REPORT, OU-2B, IR SITES 3, 4, 11, 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Dear Mr. Macchiarella:

The Department of Toxic Substances Control (DTSC) has reviewed the above referenced remedial investigation (RI) report dated May 16, 2005. We have concluded that the nature and extent of contamination at above referenced sites is not adequately characterized and the risk associated has likely been underestimated. Our comments prepared by the Geological Services Unit (GSU) are enclosed.

Given that the referenced sites have been under investigation since 1998 and a large amount of data have been accumulated to date, DTSC, in the interest of moving the process forward, concurs with USEPA and RWQCB that the above referenced sites should be allowed to proceed into the FS stage provided that:

- All currently identified Solid Waste Management Units (SWMUs) are sampled prior to completion of FS
- All data gaps are identified to the satisfaction of DTSC prior to completion of Remedial Design (RD)
- Data gap sampling is carried out as part of the RD

The RI report, as it currently stands, lacks data analysis and presentation necessary for positive data gap identification. DTSC in the interest of assisting the Navy in the data gap analysis will continue to review the data available in the RI. Such effort may not complete until data presented in a fashion consistent with the attached GSU

Memorandum is made available. If you have any questions, please do not hesitate to contact me at 510-540-3767 or mliao@dtsc.ca.gov.

Sincerely,

Marcia Y. Liao

Marcia Liao
Remedial Project Manager
Office of Military Facilities

Enclosure

cc:

Greg Lorton, SWDiv
Glenna Clark, SWDiv
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MEMORANDUM

TO: Marcia Liao, Project Manager
Office of Military Facilities
700 Heinz Avenue, Suite 200
Berkeley, California 94710

FROM: Michelle Dalrymple, PG Michelle Dalrymple
Engineering Geologist
Geologic Services Unit

REVIEWED BY: Stewart W. Black, PG
Senior Engineering Geologist
Geologic Services Unit

DATE: June 16, 2005

SUBJECT: **REVIEW OF THE DRAFT FINAL OU-2B REMEDIAL INVESTIGATION REPORT, SITES 3, 4, 11, AND 21, ALAMEDA POINT, ALAMEDA, CA, DATED MAY 16, 2005**

ACTIVITY REQUESTED

Per your request the Northern California Geological Services Unit (GSU) has reviewed the *Draft Final OU-2B Remedial Investigation Report for Sites 3, 4, 11, and 21, Alameda Point, Alameda, California* dated May 16, 2005. The draft final Remedial Investigation (RI) was prepared by Tetra Tech EM Inc. (Tetra Tech) for the U.S. Department of the Navy (Navy), Naval Facilities Engineering Command, Southwest Division. The GSU has reviewed the document with respect to the Navy's responses to GSU's comments on the draft RI report for Operable Unit (OU)-2B dated April 1, 2004. Activities performed included reviewing the response to comments and relevant portions of the draft final RI document as they pertain to the response to comments. The response to comments is contained in Appendix J of the draft final RI report.

PROJECT SUMMARY

The purpose of the RI report is to present the results, conclusions, and recommendations of the RI conducted for CERCLA Sites 3, 4, 11, and 21. These sites

are part of the northeastern area of OU-2, referred to as OU-2B. The specific objectives of this RI were to:

- Characterize site conditions;
- Determine the nature and extent of contamination;
- Assess the risk to human health and the environment; and
- Conduct treatability testing to evaluate potential performance and cost of treatment technologies that are being considered.

GSU reviewed and provided comments on the draft RI report dated April 1, 2004, and the report was resubmitted as a draft final document on May 16, 2005. Responses to agency comments are included in Appendix J of the draft final document.

GENERAL COMMENTS

1. GSU noted several deficiencies in the draft RI report that were not adequately addressed in the draft final RI document. In general, it is not possible to fully evaluate the adequacy of OU-2B soil and groundwater characterization based on the data evaluation and presentation contained in the draft final RI report. Several data gaps have been identified for each of the IR sites and for OU-wide groundwater. However, GSU cannot agree that data gaps determined by the Navy are comprehensive, due to problems with data analysis and presentation (see General Comments No. 2, 4, 5, and 6). Once the additional data analysis and presentation has been performed and presented to the regulatory agencies, it may be possible to identify the data gaps for soil at each of the OU-2B sites and for OU-wide groundwater. Any subsequent site characterization activities proposed to address data gaps must be clearly outlined in subsequent documents including sampling locations, depths, methods, analytical suites, and rationale.

2. In its review of the draft RI report, GSU noted persistent problems with data evaluation and presentation that made it difficult to review the report and agree that adequate site characterization had been performed. These problems were not corrected in the draft final RI document. Specifically, GSU requested that the spatial distribution of soil sample locations and depths for each chemical group relative to industrial physical site features (potential and known sources) be provided on the figures. Although maps showing sampling locations by analytical group were provided in the draft final RI report, this information alone is not sufficient to determine sampling adequacy. The maps must also include analytical results and the locations of known or potential sources. GSU cannot determine if adequate characterization has been performed at each site without site-specific maps of analytical data.

Recommendation

GSU requests that maps be provided that show the detected concentrations of chemicals in soil using insert boxes, spider diagrams, colored symbols, or other appropriate means. Figures containing analytical results for soil should indicate those sample locations for which detection limits exceed the screening levels and the magnitude of the exceedence (see General Comment No. 6).

3. In its response to comments on the draft RI report, the Navy stated that "in an attempt to limit the length of the nature and extent discussion so that it would still have a discernable focus on those chemicals that are identified as posing significant risk at each site, the Navy chose to focus on those chemicals that were identified as risk drivers." However, the RI/FS process requires that site characterization and the nature and extent evaluation be performed independent of the risk assessment. The results of all soil and groundwater contamination should be presented and discussed in an unbiased and systematic way. In addition, the nature and extent discussion should include those chemicals that have the potential to migrate to and further degrade groundwater. Volatile organic compounds (VOCs) present in soil at concentrations that are much lower than residential soil preliminary remediation goals (PRGs) have the potential to act as continuing sources of groundwater contamination.

One way to limit the amount of information that is discussed and presented on maps, while still keeping an unbiased approach to the nature and extent evaluation, is to select a subset of chemicals based on relative concentrations and frequency of detection that represent the greatest impact to the site. Typically, a subset of those chemicals will turn out to be the risk drivers.

Recommendation

GSU recommends that the Navy use an approach to the nature and extent evaluation that is independent of the risk assessment results. For each chemical group, consider focusing the discussion and presentation on those chemicals that show the greatest extent, concentrations, and frequency of detection in an effort to limit the volume of information presented while still providing a clear picture of the contamination issues at each site.

4. In its review of the draft RI report, GSU noted that planar groundwater maps of contaminant concentration data from multiple depth intervals were prepared which are not appropriate for the hydrogeologic conditions at OU-2B. Groundwater data should be presented by depth-discrete intervals based on hydrostratigraphy. GSU requested that depth-discrete isoconcentration contour maps be prepared for the shallow, medium, and deep Merritt Sand units, at a minimum. GSU disagrees with the Navy's assertion in its response to comments

that "addition of multiple depth plan views for each contaminant would not provide any further understanding of the plumes." It is the opinion of GSU that contouring multiple depth intervals on the same map is confusing and does not lead to a meaningful interpretation of the distribution of VOCs in groundwater or migration pathways.

GSU cannot concur with the interpretation of the nature and extent of contamination of OU-wide groundwater (including the vertical extent) without further evaluation of the data as described. The location of known or potential sources should be used in combination with lithologic and chemical data to evaluate the extent of contamination and to explain the distribution pattern that is found. Since it has been determined that dense non-aqueous phase liquids (DNAPLs) are likely to be present between 10 and 55 feet below ground surface at OU-2B, the specific location of sources combined with lithologic and chemical data should be used to evaluate where DNAPLs may reside within the aquifer.

In addition, GSU disagrees with the interpretations of the extent of VOCs in groundwater presented on the cross-sections in the draft final RI report because data with elevated detection limits (two to three orders of magnitude greater than screening levels) have been used to contour groundwater data as "not-detected" (ND). GSU disagrees with the method of interpretation that relies on samples with elevated detection limits for determining the extent of contamination and requests that the Navy consider qualifying these data or eliminating them from the nature and extent interpretations, as appropriate (see General Comment No. 6).

<u>Recommendation</u>

Please prepare depth-discrete maps of groundwater data showing the lateral extent of contamination in each hydrostratigraphic unit. Include a description of how hydrostratigraphic units were identified, an evaluation of site-specific groundwater flow directions and gradients within each unit, and an evaluation of site-specific vertical gradients between each unit. Isoconcentration contour maps for each unit must include the analytical data upon which the extent is based, and indicate those sample locations for which elevated detection limits are present.

Finally, GSU requests that lithology and the locations of surface sources be added to the cross-sections in Section 9 to assist with the interpretation of hydrostratigraphy and to demonstrate how lithology affects contaminant migration. These cross-sections should be constructed to demonstrate areas where DNAPLs may be present, the location of DNAPL concentrations relative to known or potential sources, and the lithology in the vicinity of these sources.

5. GSU is particularly concerned with the nature and extent evaluation of OU-wide groundwater and the apparent inadequacy of the monitoring well network. While a tremendous amount of groundwater data has been collected from OU-2B, there appears to be an insufficient number of monitoring wells from which repeatable data can be obtained. Much of the groundwater data available for OU-2B is from one-time direct-push grab samples. While grab samples are a useful screening tool, these data are not repeatable and cannot be used to evaluate plume migration and seasonal fluctuations.

   Figures 9-4 through 9-8 in the draft final RI report, which are intended to show OU-wide groundwater sampling locations for the various chemical suites, do not distinguish between direct-push locations and actual monitoring well locations, nor do these maps indicate at what depths samples were collected. Given the vast amount of groundwater data collected from OU-2B, and the large aeral extent and depth of the plumes, GSU does not find these generalized figures to be useful.

   For each depth-discrete hydrostratigraphic interval (for example, the upper, middle, and deep Merritt Sand units), monitoring wells are needed in the center of the plume(s) to monitor maximum concentrations, as well as on the plume margins to monitor lateral extent and plume migration. Monitoring wells should be located upgradient as well as downgradient of known sources. It is not readily discernable from the maps provided in Section 9 of the draft final RI report how many wells are available for each depth interval sampled. A sufficient number of monitoring wells must be placed in each depth-discrete interval to evaluate groundwater flow directions, gradients, and velocities, in addition to plume migration and seasonal fluctuations.

   Recommendation

   In addition to providing depth-discrete maps of analytical data as suggested in General Comment No. 4, GSU requests that symbols used on maps distinguish between monitoring wells and direct-push samples. Symbols for monitoring wells screened at different depths should vary based on the hydrogeologic interval sampled. Also, GSU requests that a table of monitoring well construction details for all OU-2B monitoring wells be provided. Once these activities are complete, GSU recommends that an evaluation of the monitoring well network at OU-2B be performed to determine where additional monitoring well are needed.

6. In its review of the draft RI report, GSU noted persistent problems with analytical detection limits elevated above screening levels. These problems were not adequately addressed in the draft final RI report. While GSU understands that elevated detection limits may sometimes be unavoidable due to the variety of reasons described by the Navy, it is the opinion of GSU that data with detection limits that are elevated two to three orders of magnitude above screening levels

should not be used to interpret the nature and extent of contamination. As the data are currently presented, it is not possible to ascertain the severity of the problem and whether or not the sites have been adequately characterized (see General Comments No. 2 and 4).

The Navy has stated that detection limits that exceed the PRG would be a concern only for the risk assessment. However, it is the opinion of GSU that elevated detection limits will also potentially mask areas of soil contamination that may act as a continuing source to groundwater. In addition, data with detection limits that are greater than screening levels should not be used to contour groundwater data as ND (see General Comment No. 4).

Recommendation

Please consider eliminating data with elevated detection limits from the nature and extent interpretations, as appropriate, or at least qualify their use. Figures containing analytical results for soil and groundwater should indicate those sample locations for which detection limits exceed the screening levels. For simplicity, one suggested format can be to depict the magnitude of the exceedence (such as less than 2 times, 2 to 10 times, or greater than 10 times the screening level) with colored symbols. Another method that could be used is to provide insert boxes or spider diagrams with the actual value of the exceedence depicted with a "U" qualifier along with detected values for specific chemicals.

7. Due to incomplete characterization and/or problems associated with elevated detection limits, it is very likely that the risks for Sites 3, 4, 11, and 21 have been underestimated.

8. The RI report is extremely bulky (four volumes in 3- and 4-inch binders), and this makes it awkward to review and read. GSU requests that the Navy consider supplying raw data on compact disks whenever possible to minimize the bulk of these reports.

If you have any questions, please feel free to contact me at (510) 540-3926 or via e-mail at mdalrymp@dtsc.ca.gov.